ITCS 209 Object Oriented Programming	Name:	Lab	Challenge Bonus	Peer Bonus
	ID:			
	Sec:			

Lab12: File Management and Regular Expression

In this lab, you are provided with the java file `ICTCovidReport.java` and the COVID-19 data in .csv format `owid-covid-data.csv` (**REF**: https://ourworldindata.org/explorers/coronavirus-data-explorer) , your task is to complete three methods that help generate the COVID-19 report. Any techniques or library to read the .csv file is allowed.

Task 1: complete method `showData(String file, String date)`. This method will display the `location` and the number of `new_cases` of COVID-19 patients presented in the file `owid-covid-data.cs` based on the given `date`.

- Inputs:
  - `String file` : The absolute path to the .csv file.
  - `String date` : The date to retrieve data from the file.
- Outpus:
  - Display a list of `location` and number of `new_cases` base on the given date. The format is `[Location] new cases: x`, where x is the number of new cases for the location on the given date.

Expected output for the given date **24/02/2020.** `showData(file, "24/02/2020")`.

```
[Date:24/02/2020]
[Afghanistan] new case: 5
[Asia] new case: 491
[Bahrain] new case: 1
[Canada] new case: 1
[China] new case: 214
[Europe] new case: 76
[European Union] new case: 74
[High income] new case: 330
[Hong Kong] new case: 5
[Iran] new case: 18
[Iraq] new case: 1
[Italy] new case: 74
[Japan] new case: 11
[Kuwait] new case: 1
[Low income] new case: 5
[Lower middle income] new case: 18
[North America] new case: 1
[Oman] new case: 2
[South Korea] new case: 231
[Taiwan] new case: 2
[United Kingdom] new case: 2
[Upper middle income] new case: 215
[World] new case: 568
```

Note that: The data will not be displayed if new cases is 0 or empty.

Task 2: complete method `getTotalCases(String file, String location)`. This method will return the number of total cases (form all dates) based on the given `location`. It will return number of total cases for all locations if use "`*`" as an input.

- Inputs:
  - `String file` : The absolute path to the .csv file.
  - `String location` : The location of COVID-19 infected patient.
- Output:
  - `long total_cases_by_loc` : the method should return total cases of infected patient by sum up all new_cases patient based on the given `location`.
  - If you use "`*`" as an input, it will return the number of total cases for all locations.

Expected output for the following call**:**

- `System.out.println(getTotalCases(file, "*")+" cases.");`
- `System.out.println(getTotalCases(file, "Thailand")+ " cases.");`

```
2039115674 cases.
3529099 cases.
```

Challenge Bonus (Optional):

Task 3: complete method `showIncorrectDate(String file)`. As data in the column "date" contains incorrect date format such as 'DD-MM-YYYY' or 'DD MM YYYY', your task is to use the regular expression technique to filter out and display all rows that contain incorrect date format.

- Inputs:
  - `String file` : The absolute path to the .csv file.
- Output:
  - Display a list of data that contain incorrect date format. The output should show, `[Location] Wrong Format: x`, where `x` is a wrong format date.

Expected output when calling the function `showIncorrectDate(file)`.

```
[Afghanistan] Wrong Format: 25-11-2020
[Africa] Wrong Format: 25.11.2020
[Albania] Wrong Format: 25 11 2020
[Algeria] Wrong Format: 25_11_2020
[Andorra] Wrong Format: 25|11|2020
```